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# H1N1 Influenza Virus

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## Background

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On April 17, 2009, two patients in the United States were found with Swine-Origin Influenza A (H1N1) virus. This virus was spread to Mexico, Canada, and many other countries. From April 15 through May 5, a total of 642 confirmed cases of H1N1 infection were identified in 41 states. The ages of the patients were from 3 months to 81 years, and 60% of the patients were 18 or younger. Most of these patients recently came from either Mexico or even from school outbreaks. The most common symptoms were fever, cough, and a sore throat. The H1N1 was determined to have a unique genome composition that had not been identified previously (Padilla et al., 2009).

### Historical

“Studies performed over the past 15 years have confirmed the therapeutic benefit of amantadine when given early in the course of acute illness due to influenza A virus, both in shortening their symptoms and decreasing their severity. Despite the reports, amantadine is not used in medicine very often. Clinicians were concerned about the side effects of amantadine and may be convinced that other drugs, such as aspirin, are just as effective in relieving symptoms and controlling fever. During an outbreak of influenza A/Brazil/78 H1N1 infection in the winter of 1981, a controlled double-blind study was performed comparing the therapeutic advantages and disadvantages of amantadine and aspirin for the treatment of influenza. Low and high doses of amantadine were compared to determine if side effects could be preventable (Younkinh, Betts, Roth, & Douglas, 1983).

### Microorganism

H1N1 is an influenza virus that is related to the swine flu. Influenza viruses cause epidemics of respiratory illness and pandemics. Like all viruses, influenza relies on the host cellular machinery to support their life cycle. Efforts to control these outbreaks and real-time monitoring of the evolution of this virus should provide us with invaluable information to direct infectious disease control programmers and to improve understanding of the factors that determine viral pathogenicity and/or transmissibility (Plennevaux et al., 2009).

Areas that have been  
affected



# H1N1 Influenza Virus

By: Kail Consford and Drew Patel

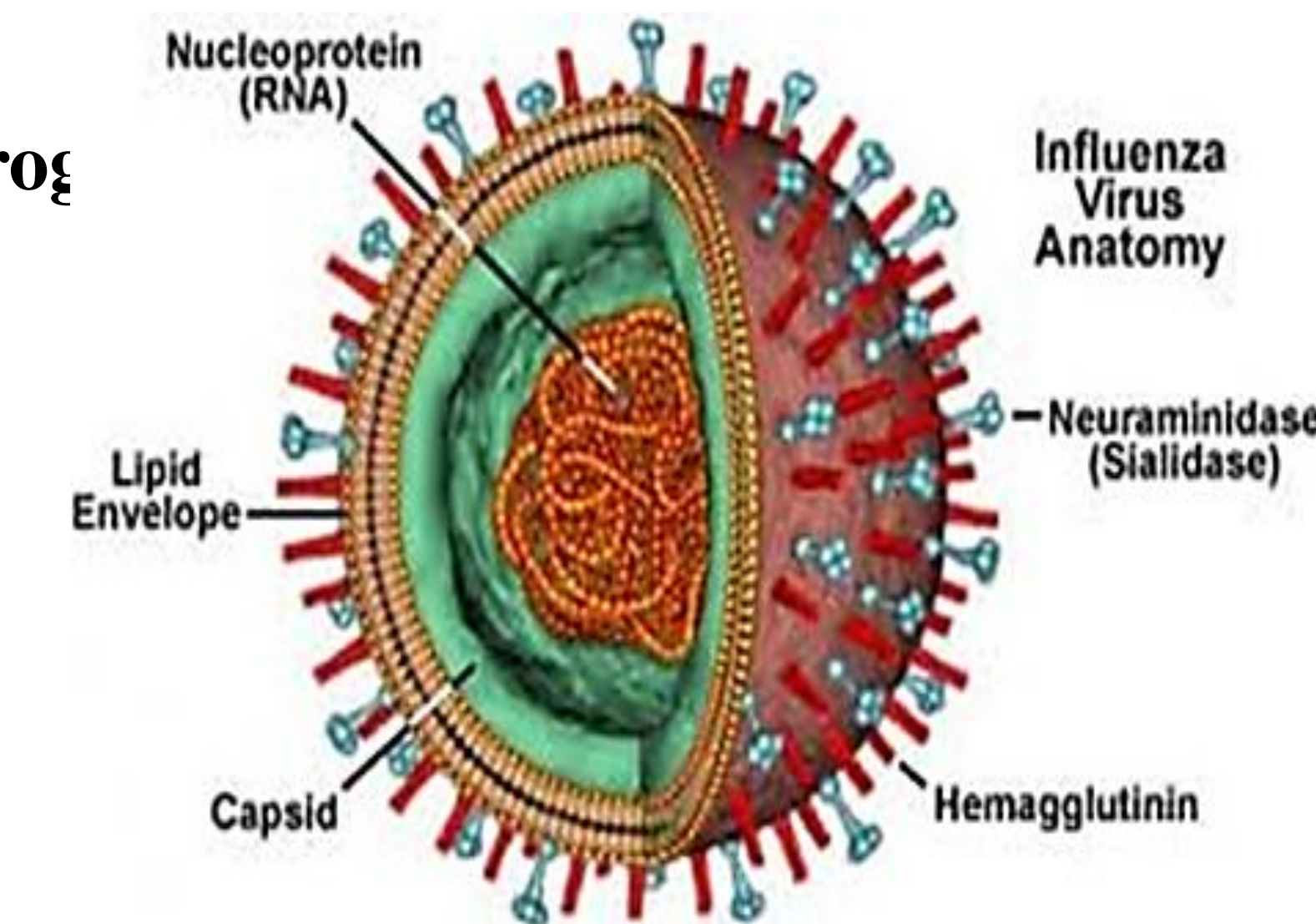
## Infection/Disease

### Immune response

H1N1 goes through immune response with the three lines of defense. The first line of defense had goes through a sore throat, runny nose, and coughing stage. It soon became air born. The second non-specific line of defense began with a 99.0 F. The third specific line of defense was developing severe pneumonia. The patients with pneumonia had no distinguishing epidemiologic, clinical, or laboratory features (Plennevaux et al., 2009).

### Doctors used amantadine

to control fevers and relieve symptoms. Patients without amantadine increased their risk in death. Doctors try to decide whether more doses of amantadine will prevent the side effects. They also study the symptoms to see what else they need to prevent to find a vaccine for H1N1 (Padilla et al., 2009).

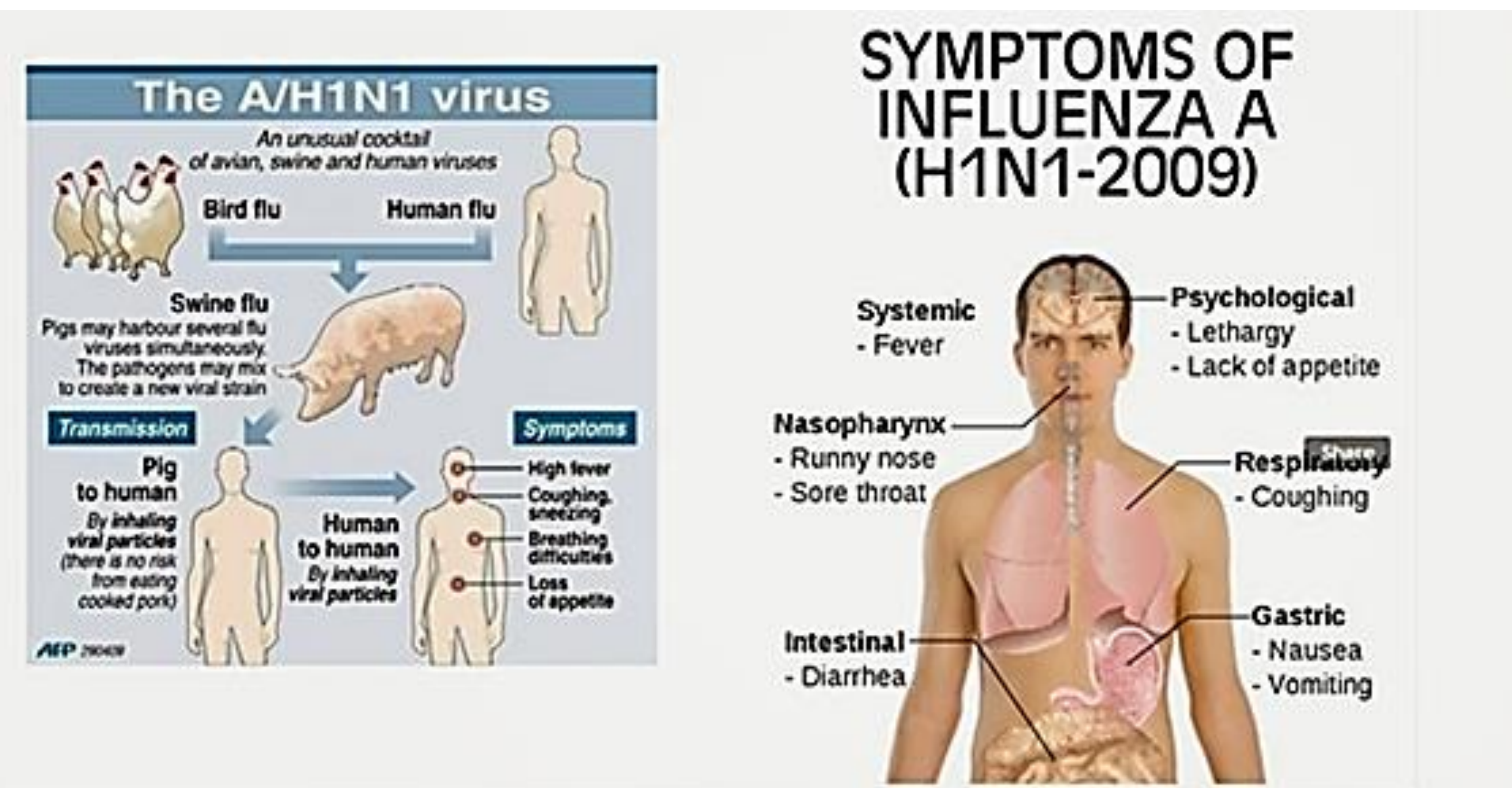


How the H1N1 cell is  
constructed

### Prognosis

Mexico had reported 4,910 confirmed cases and 85 deaths caused by H1N1. Mexico had the most severe H1N1 cases than any other country and also had the most patients with the virus. Pneumonia was the worst side effect and the hardest to get rid of. Doctors reviewed clinical data from patients with influenza-like illnesses and pneumonia with a negative result on H1N1. They took swabs to study the effects of medicines so that they could which medicines helped with the symptoms of H1N1. Once primers and probes were developed, they sent the vaccines to Mexico to hopefully reduce the cases of h1n1 and deaths (Ginocchio et al., 2009).

Symptoms and how HINI  
began.



## Treatment

### Options

H1N1 can cause illness, respiratory distress syndrome, and death. Because of these symptoms, this virus is very deadly to all ages. Doctors came to the conclusion that amantadine would be a necessary treatment for this virus. Amantadine helps control high fever and relieves the symptoms of H1N1. Doctors also tried the adding of oil-and-water to a TIV but did not increase the frequency of response in 2009. Microneutralization assay was another technique used by the Centers for Disease Control and Prevention to prove some adults have serum cross-reactive antibodies to the H1N1 virus. Because of the results of only one out of 124 children with this antibody at the level of 40, they had an increase to the 2009 H1N1 strain after receipt of “seasonal trivalent inactivated influenza vaccine” (World Health Organization, 2010).

### Mechanism

Patients began getting doses of medications receiving it at admission (A mean of 8 days after the onset of symptoms). Each patient was given an antibiotic to help doctors find witch antibiotic showed the most improvement. Doctors tried different vaccines for patients that had different symptoms to see if their symptoms would lesson. After trying corticosteroids, five out of six patients died. They tried many more vaccines after they found what was in the corticosteroids that made the five patients die (Nishiura, 2009).

### Emerging

Although antigen based tests require little technical skill, are rapid and can be performed in an emergency department setting, the sensitivity and specificity of the assays are questionable. BinaxNOW assay (a swine-flu test) demonstrated very poor sensitivity for the detection of both seasonal influenza A compared to R-Mix culture. (Padilla et al., 2009).